

## CLAIMS

1. A transport system comprising:

a main rail formed along a required route and having at least one slope region;

5 an auxiliary rail formed under said main rail in the slope region of said main rail;

a vehicle coupled to an object to be transported, and carrying a drive wheel rotatable on an upper surface of said main rail and a drive means for said drive wheel;

10 an auxiliary wheel held by said vehicle to be rotatable on said auxiliary rail without contacting said main rail; and

an elastic-force loading means configured to apply an elastic force in a direction of pressing said auxiliary wheel against said auxiliary rail.

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2. The transport system as set forth in claim 1, wherein said vehicle comprises a coupling means for coupling between said vehicle and said object positioned under said vehicle, and said auxiliary wheel and said elastic-force loading means are held by said coupling means.

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3. The transport system as set forth in claim 1, wherein a distance between said drive wheel and said auxiliary wheel is determined to be larger than a thickness of said main rail, and smaller than a total thickness of said main rail and said auxiliary rail, and the distance between said drive wheel and said auxiliary wheel is extended against the elastic force of said elastic-force loading means by said main rail and said auxiliary rail in the slope region to increase a contact pressure of said drive wheel on said main rail.

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4. The transport system as set forth in claim 1, further comprising:  
a first sprocket disposed at a high position side of the slope region;  
a second sprocket disposed at a low position side of the slope region;  
an endless belt looped between the first sprocket and the second sprocket  
5 an engaging means formed on said endless belt;  
an auxiliary drive means configured to drive at least one of the first sprocket  
and the second sprocket to move said vehicle engaged to said engaging means  
from the low position side to the high position side of the slope region.

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5. The transport system as set forth in claim 1, wherein said main rail is  
formed in an H shape with an upper flange, a lower flange, and a web extending  
between the upper flange and the lower flange, and wherein said drive wheel is  
rotatable on the upper flange, and said vehicle has a pair of driven wheels  
15 rotatable on opposite surfaces of said web.

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6. The transport system as set forth in claim 5, comprising a shock absorbing  
material disposed between said driven wheel and the upper flange.

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7. The transport system as set forth in claim 1, wherein the slope region is  
provided by alternately forming a first slope region and a second slope region  
having a different inclination from the first slope region.

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8. The transport system as set forth in claim 1, wherein said main rail has a  
stopping region, at which said object to be transported is loaded and unloaded,  
and said auxiliary rail is disposed under said main rail at the stopping region.

9. The transport system as set forth in claim 1, wherein at least one of starting and finishing ends of said auxiliary rails has a tapered portion formed such that a thickness of said auxiliary rail smoothly decreases toward its end.

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10. A suspended-type transport system comprising:

a main rail formed along a required route and having at least one slope region;

10 an auxiliary rail formed under said main rail in the slope region of said main rail;

a vehicle carrying a drive wheel rotatable on an upper surface of said main rail and a drive means for said drive wheel;

a coupling means connected at its one end to said vehicle and at the other end to an object to be transported;

15 an auxiliary wheel held by said coupling means to be rotatable on said auxiliary rail without contacting said main rail; and

an elastic-force loading means configured to apply an elastic force in a direction of pressing said auxiliary wheel against said auxiliary rail;

20 wherein a distance between said drive wheel and said auxiliary wheel is determined to be larger than a thickness of said main rail, and smaller than a total thickness of said main rail and said auxiliary rail, and the distance between said drive wheel and said auxiliary wheel is extended against the elastic force of said elastic-force loading means by said main rail and said auxiliary rail in the slope region to increase a contact pressure of said drive  
25 wheel on said main rail.